BAAN IV Orgware

Dynamic Enterprise Modeling

User Manual U7001A US

Document information

Document

Number	: U7001A US
Type	: User Documentation
Name	: Dynamic Enterprise Modeling
Version	: A
Date	: November 1996

© Copyright 1996 Baan Development B.V. All rights reserved
The information in this document is subject to change without notice. No part of this document may be reproduced, stored or transmitted, in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of Baan Development B.V.

Baan Development B.V. assumes no liability for any damages incurred, directly or indirectly, from any errors, omissions or discrepancies between the software and the information contained in this document.

Table of contents

1	**Introduction**	1.1
1.1	General	1.1
1.2	Benefits	1.2
1.2.1	*Implementation of BAAN IV*	1.2
1.2.2	*Business process re-engineering*	1.2
1.3	Dynamic Enterprise Modeling concept	1.3
2	**Method**	2.1
2.1	Introduction	2.1
2.2	Scope definition/system boundaries	2.1
2.3	Business control model	2.1
2.4	Identification of high-level cross-functional processes (start-to-end)	2.3
2.5	Main process identification	2.4
2.6	Brainstorm on options and variants	2.7
2.7	Main process and detailed process design	2.8
2.8	Wizard design	2.9
2.8.1	*Introduction*	2.9
2.8.2	*Characteristics of wizards*	2.9
2.8.3	*Wizard types*	2.9
3	**Conventions**	3.1
3.1	Process modeling by means of Petri-nets	3.1
3.1.1	*Introduction*	3.1
3.1.2	*Petri-net symbols and definitions*	3.1
3.1.3	*Modeling principles*	3.2
3.1.4	*Petri-net building blocks*	3.4
3.1.5	*Petri-net modeling advises*	3.5
3.2	Modeling conventions for the BAAN IV Enterprise Modeler	3.5
3.2.1	*Introduction*	3.5
3.2.2	*Generic business functions in the repository*	3.6
3.2.3	*Generic business processes in the repository*	3.7
3.2.4	*Business rules in the repository*	3.9
3.2.5	*Static conditions in the repository*	3.10
3.2.6	*Roles in the repository*	3.10
3.2.7	*Utilities in the repository*	3.10
3.2.8	*Wizards in the repository*	3.11
4	**Version management**	4.1
4.1	Introduction	4.1
4.2	Working principle	4.1
4.2.1	*Baan version*	4.1
4.2.2	*Client kernel team*	4.2
4.2.3	*Client site team*	4.2
4.2.4	*Version management policy*	4.2
4.2.5	*Modification practices*	4.3

5	**Project management**	5.1
5.1	Introduction	5.1
5.2	Ultimate objective	5.1
5.3	Project organization	5.1
5.3.1	*Concurrent engineering*	5.1
5.3.2	*Resources*	5.2
5.3.3	*Structure of project organization*	5.2
5.4	Project management instruments	5.2
5.4.1	*Milestone plan*	5.3
5.4.2	*Responsibility chart*	5.4
5.4.3	*Activity schedule*	5.5
5.4.4	*Deliverables*	5.5
6	**Glossary**	6.1

About this document

This document explains the Dynamic Enterprise Modeling concept, which is an integral part of Orgware, Baan's implementation methodology. The Dynamic Enterprise Modeling concept deals with all aspects concerning the creation of a reference model using the Enterprise Modeler tool.

To explain the concept, this document starts with an introduction. Next, the method is discussed in detail. Then, the modeling conventions are explained. Next, version management is discussed, and some advises are given. Finally, an explanation is given of the management of the project in which a reference model is built. The document concludes with a glossary.

1 Introduction

1.1 General

The ever-changing demands of the marketplace force today's companies to keep reassessing their business processes, organization and technology. This call for versatility makes strict demands on the information infrastructure, which must be flexible enough to follow the organizational changes. In addition, modern information technology (IT) offers important possibilities to support new and fundamentally different types of organizations (process organization using IT as enabler).

Baan anticipates these developments by introducing the Dynamic Enterprise Modeling (DEM) concept, which forms an integral part of BAAN IV Orgware. Even more explicitly than in the past, the DEM concept places the implementation of BAAN IV in a process control context. The focus moved from functionality orientation to a business solution and a business oriented approach.

The DEM concept has three key objectives:

1. Speed
   DEM is based on a short and compact implementation cycle, which minimizes the implementation effort through the use of modern tools and business experience.
2. Flexibility
   DEM proposes optimization phases after an initial implementation. This gives all the benefits of a fast implementation while in the following optimization phases, the BAAN IV configuration smoothly follows organizational changes without the need for time-consuming and costly reconfigurations.
3. Integration
   The speed and flexibility are accomplished by fully integrating the Enterprise Modeling tool (BAAN IV Enterprise Modeler) with the BAAN IV applications. As a result of this integration, most of the configuration activities are automated. Thus, the Enterprise Modeler is not only a modeling tool but also a tool to generate the system configuration and the processes. The tool also functions as the user interface from which the application can be accessed.

The concept of Dynamic Enterprise Modeling is based on the definition of generic business models for certain organization typologies. These business models are not rigid, but can be adapted to specific requirements and future changes.

1.2 Benefits

The predefined organization typology business models (referred to as reference models) will support the client management in the following two areas:

1. Implementation of BAAN IV
2. Business process re-engineering

1.2.1 Implementation of BAAN IV

- **Support for pre-sales**
  Offering, presenting, and evaluating organization typology business models which closely relate to the customer's organization, supports the pre-sales phase of the implementation. This way the focus can be on the solution for certain kinds of customers and by using their businesses processes, the solution/application can be made recognizable, which leads to increased acceptance. This also shows Baan's commitment and knowledge of the customer's business.
- **Support for the implementation and optimization stages**
  Offering methods and tools for customizing the generic business model to the specific needs of the customer, supports the implementation and optimization of BAAN IV. Based on this customer-specific business model, the BAAN IV parameters are set and the user-specific menus are created automatically for each phase. Multiple phases reduce the level of complexity in the implementation, which is a large benefit.
- **Shortening the implementation cycle**
  Based on the generic business model, the discussion can focus on specific issues of the customer's organization. This prevents the customer from reinventing the wheel and thereby contributes to shortening the implementation cycle.
- **Higher quality implementation**
  Making sure that all relevant areas/topics are covered.

1.2.2 Business process re-engineering

- **Support for the business process re-engineering cycle**
  By providing a best-practice knowledge base for an organization typology, DEM supports the dialog between an organization's topmanagement and business consultants. The knowledge base will, for example, point to new opportunities offered by information technology as enabler for other process structures as well as to the organizational consequences.

  The re-engineering cycle is related to implementation phases.

1.3 Dynamic Enterprise Modeling concept

This document describes the Dynamic Enterprise Modeling concept, which is the standard Baan concept for the development of business models for organization typologies (such as engineer-to-order, assemble-to-order, project industries, and wholesale). It covers the following subjects, which are discussed in the next chapters.

- Method
- Conventions
- Version management
- Project management

The glossary includes a list of used terminology.

2 Method

2.1 Introduction

The most important and critical deliverable of the modeling project is the identification and specification of main processes. The question how to identify main processes for a certain type of business is, although straightforward, not that easy to answer. In practicing Dynamic Enterprise Modeling, a business control model proved very helpful in identifying the main processes. Baan has, therefore, developed the following approach.

2.2 Scope definition/system boundaries

The first step in business model development is the definition of the scope of the business model. It must be clear up front which part of the entire supply chain will be covered by the reference model. Therefore, the following questions must be answered:

- which part of the supply chain will be covered?
- which organization types can be identified in this supply chain?
- what are the primary processes of these organizations?
- what are the coordination processes between organizations?
- what are the constraints of the business model?

2.3 Business control model

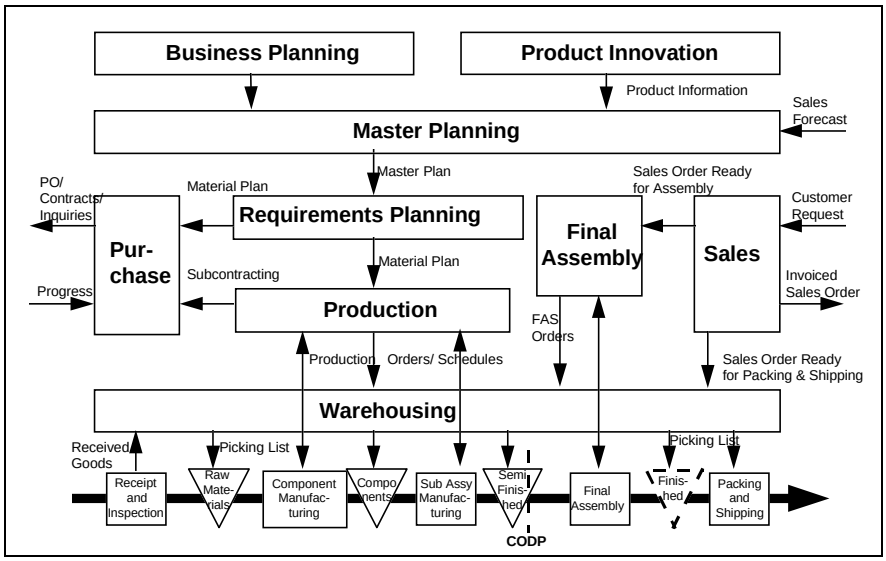
In general a logistic concept serves as a good business control model. The model defines the goods flow through the primary processes and the way these goods flows are managed and controlled. Central concepts in this area are the Customer Order Decoupling Point (CODP) principle, Manufacturing Resource Planning (MRPII), and Supply Chain Management.

The goods flow control model must be defined on at least the following levels:

- **Supply chain level**
  This model describes the goods flow crossing the borders of sites and/or legal entities. It covers the goods flow through the whole supply chain (tier II, tier I, component manufacturers, system assemblers, distributors, customers). Important issues are the coordination mechanism put in place for managing the goods flow on both tactical and operational level (such as contracts, delivery schedules, daily call-in).
- **Company/site level**
  This model describes the goods flow within the borders of one site but cross-departmental. Important is to identify which part of the operation is customer-order driven and which part is planning driven. Another important aspect is how the required coordination is established within the site, with respect to materials and capacity requirements.

- **Department level**
  This model defines the management of the departments including workload management, work order acceptance/release, progress monitoring, as well as material issue to the shop floor.

The figure below presents a generic goods flow control model for a manufacturing site. This model provides a framework for developing the organization typology specific control models. It shows the primary processes and control functions on operational and tactical levels.



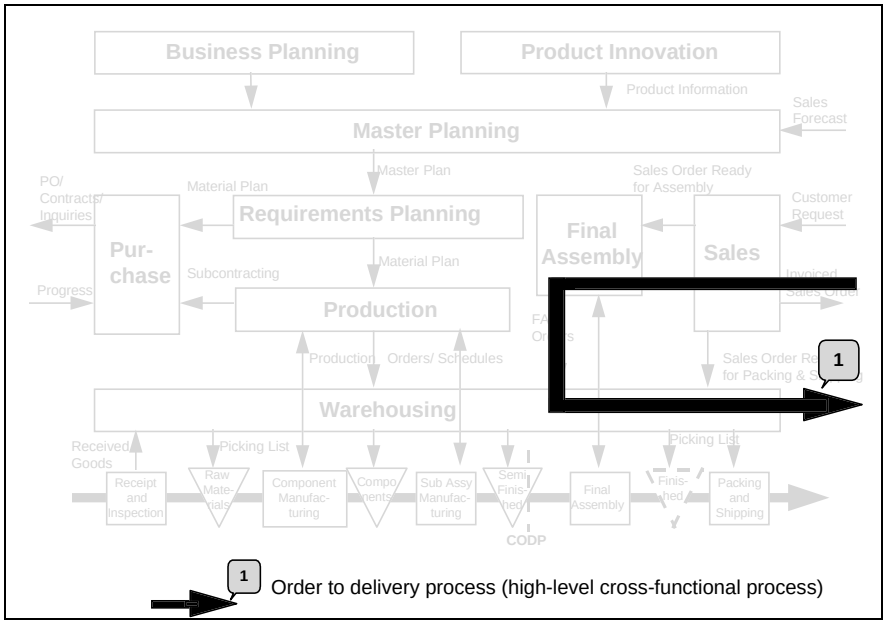
Generic goods flow control model for a manufacturing site

2.4 Identification of high-level cross-functional processes (start-to-end)

Considering the goods flow and order flow in the business control model, high-level, cross-functional processes can be identified by following triggers/events through the processes from start to end.

Example

In an assemble-to-order environment, the order-to-delivery cross-functional process is externally triggered by the arrival of a sales order. The cross-functional process covers all activities from sales order acceptance up to delivery and invoicing to the customer, including the planning, assembly, and material handling. See the figure below, which shows this cross-functional process.



The order-to-delivery process

It helps to consider the Customer Order Decoupling Point (CODP) concept to identify the external and internal events that trigger the cross-functional processes.

Again the assemble-to-order example:

- order-to-delivery: triggered by sales order
- anonymous subassembly manufacturing: triggered by forecast

Once all cross-functional processes have been identified, they cover the whole scope of the business. These high-level conceptual processes, however, are not suitable as desktop entries for end users. Therefore, these conceptual processes must be decomposed into main processes.

2.5 Main process identification

Definitions

- **Main processes**
  Workflow definitions that are designed to execute one workflow case (for example, the acceptance of one sales order from a client).
- **Case**
  A very clearly definable and unambiguous description of *what* should be handled and accomplished in the workflow process. Per case, the nature and characteristics of the objects that flow through the process remain the same.
- **Workflow definition**
  A definition of *how* a case is handled and accomplished. It must be possible to define very precisely what the input is for a main process, what the output will be, and what the conditions are for executing the main process (triggers and constraints).

The next step in the decomposition of the high-level cross-functional processes, is the definition of workflow cases.

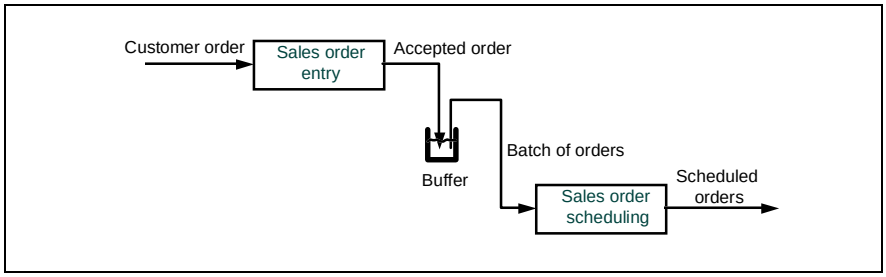
For identifying the cases the following approach is recommended:

- Define what the nature and characteristics are of the object that will flow through the main process, for instance is it a sales order, or a goods receipt.
- Whenever the nature or characteristics of the object change, the workflow case changes with it and, therefore, this indicates the beginning of a new main process. Sometimes it can also be helpful to define how a case is identified (by a unique key) and how it is described with attributes.
- Define decoupling points in the process, which are either:
  - decoupling points in time, dictated by the nature of the process
  - natural buffers, dictated by the nature of the process

The decoupling points are illustrated in the two examples below

1. Example of decoupled subprocesses in time dictated by the nature of the process:
In a make-to-order/assemble-to-order environment, the sales order acceptance subprocess is decoupled from the sales order delivery subprocess (both subprocesses belonging to the same customer interfacing cross-functional process ‘order-to-delivery‘).

2. Example of natural buffers that occur in process execution:
Within the sales order acceptance subprocess, sales order entry will be conducted during the day, whenever a sales order arrives. Scheduling for production, however, will be done for a group of sales orders which are to be produced in the same time frame and/or use the same type of resources. As a result, a natural buffer occurs between order entry and order scheduling. See the figure below.



Natural buffering in processes

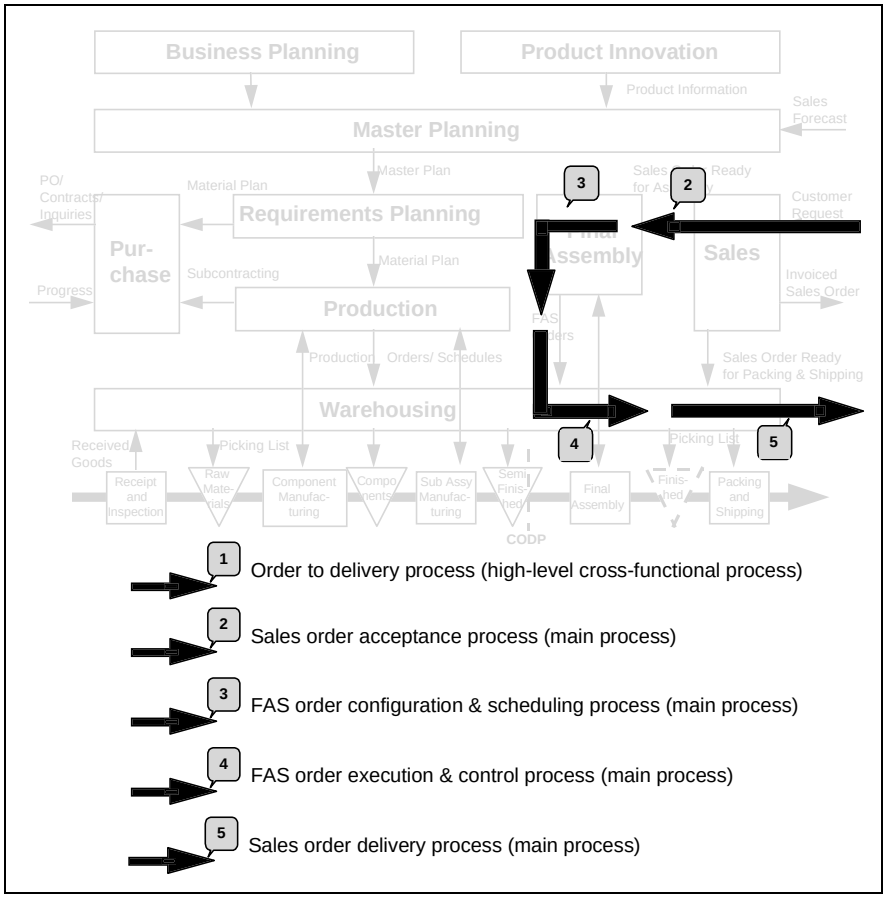
In this second example, two cases must be considered, hence there are two main processes:

1. a case for one customer order to be accepted
2. a case for one batch of sales orders to be scheduled; the event to start the main process for handling this case is probably a time trigger.

Before the processes can be designed, a main process sheet must be prepared containing all the identified cases with the following information:

- what is the case definition, that is, the job to be handled in the process
- what is the starting event that triggers this process
- what is the end event that will be produced by the process
- what is the condition to start the execution of the process
- what are the main process steps required (5-10 steps) in the process

Applying this approach on the logistic control model gives the following result:



The main processes within the high-level order-to-delivery cross-functional process

An important bottom-up check is to verify whether the complete high-level cross-functional process is covered by the set of main processes. The results of the preceding main process must be the input of the succeeding main process.

A practical design constraint is that, in order to limit the depth of the menu structures on the desktop of the end user, the amount of levels underneath the main processes should be limited to 2-3 levels (max. 4). In order to achieve this, the scope of the main processes, and hence the case definition, must be limited.

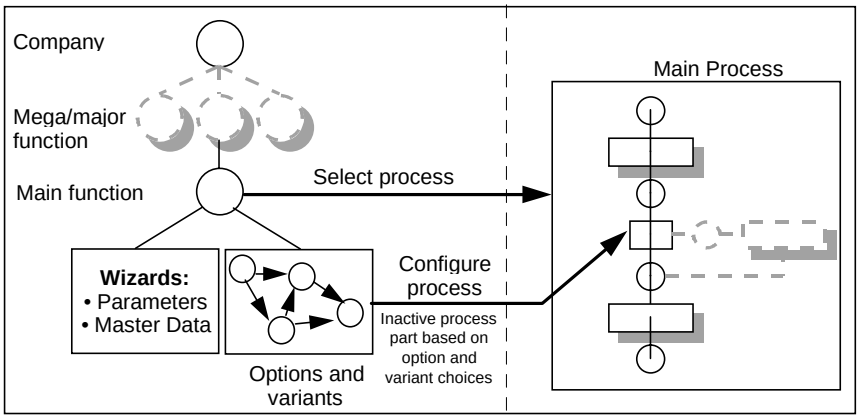
2.6 Brainstorm on options and variants

A reference model provides solutions for the initial implementation (as part of Baan Target's compact approach) as well as sophisticated solutions for the optimization phases. Hence, a best-practice growth path must be modeled by means of options and variants which can then be selected by local implementation teams.

In a brainstorm session, business consultants with experience in the specific organization typology will brainstorm on important issues, problems, and best practices within the framework of the identified main processes (handling of the case).

These issues must subsequently be transformed into options and variants in the process model. These options and variants are considered to be requirements for the design phase of the processes. These options and variants will also be presented as growth paths in the business function model.

The options and variants will be stored underneath the main functions that correspond to the main process. Based on which options and variants are selected in the function model, the processes can be configured, which means process parts are activated or deactivated. The following diagram shows the relations between business functions and business processes.



Relations between business functions and business processes

The relations in the diagram are as follows:

- For each workflow case, a main process is defined in the process model
- For each workflow case, a main function is defined in the function model. Based on the presence of the main function in the reference and/or project model, the main process will be selected from the repository.
- Options and variants are incorporated in the main and detailed processes as alternative paths through the processes.
- Options and variants are presented underneath the main function as issues to be discussed with the client.

- Decisions made with respect to the options and variants in the function model influence the configurations (active and inactive process parts) of the main and detail processes.
- Wizards are connected to main functions in order to present a question and answer dialog to aid the implementation team in setting main process-related parameters.
- For convenience, the main functions are structured hierarchically. (Company/reference model =>mega functions => major functions = > main functions => options and variants).

2.7 Main process and detailed process design

The main process sheet with identified options and variants forms an excellent starting point for the division of development labor among the working groups. A working group must be assigned to one or more related main processes to be elaborated. See also Chapter 5, which discusses the project management aspects of Dynamic Enterprise Modeling.

The processes must be modeled according to Petri-net standards and modeling conventions, which are described in the next chapter.

In this phase it is essential that the modeling team make full use of the generic processes in the repository to avoid reinventing the wheel.

It has proven to be more effective to work with a 95 % standard solution available in the repository than to develop a 100 % solution that must be maintained throughout the life cycle of the model.

For every identified detail process, the repository must be assessed. In order to facilitate this search process, all the detail processes are classified. For details on this classification, refer to the business process classification section in the next chapter.

2.8 Wizard design

Wizard technology is used to develop a question and answer dialog for setting the appropriate parameters within the scope of the main process. These wizards must be connected to the main functions.

2.8.1 Introduction

To make the Baan application suitable for mass distribution, the application can be installed and implemented with a minimum of support from consultants. Wizards will help the user during the installation. The wizards will be helpful in setting the parameters quickly and filling some important tables in the correct order.

2.8.2 Characteristics of wizards

Wizards for parameter setting are connected to a main business function. In the BAAN IV Enterprise Modeler, it is also possible to set some parameters with rules. As a rule parameters are set based on business function choices. Only those parameters which cannot be set unambiguously by business functions, are set by means of wizards. Wizard steps are only executed for those parameters that need to be set based on the selected functions and variants.

2.8.3 Wizard types

Functionally, the following three types of wizards can be distinguished:

1. **Enterprise configuration wizard**
   The Enterprise configuration wizard is used to select and copy a reference model, and create the initial BAAN IV configuration.
2. **Basic/mandatory wizards**
   A wizard can be a basic/mandatory wizard. These wizards are not basic/ mandatory because of technical reasons, but mainly because of business reasons.
3. **Advanced wizards**
   Advanced wizards will be used for a more customer-specific parameter setting. When these wizards are not executed, default values are used. These defaults must be defined from a business view.

Technically, the following four types of wizards can be distinguished:

1. Wizards for one or more parameters that do not depend on other parameters. In this case, no wizard constraints must be defined.
2. Wizards for one or more parameters that depend on other parameters. In this case, wizard constraints must be defined.
3. Wizards of one of the above named two types, which is also used to add one or more records in another table (for example units) by starting a business process or a session.
4. Wizards of one of the above named two types, which also uses a dynamic link library (DLL) to fill a table without starting a business process or a session. Dynamic link libraries contain program parts, usable by other programs, which are used to accomplish certain (technical) objectives.

3 Conventions

3.1 Process modeling by means of Petri-nets

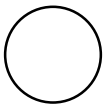
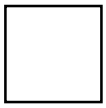
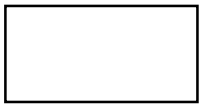
3.1.1 Introduction

The Petri-net modeling technique was developed by Adam Petri in the sixties. It has since become one of the world wide standard process modeling methods, mainly because of the extensive scientific research put into this method.

With the increasing popularity of workflow concepts and systems, the use of Petri-nets has also gained ground. The BAAN IV Enterprise Modeler supports the Petri-net modeling technique in recording business processes. This chapter explains some of the principles and basic constructions in the framework of business process modeling.

3.1.2 Petri-net symbols and definitions

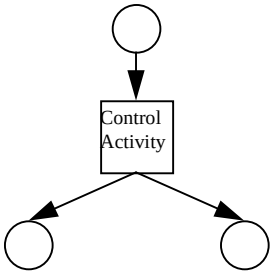
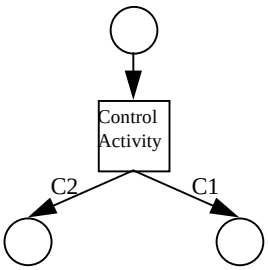
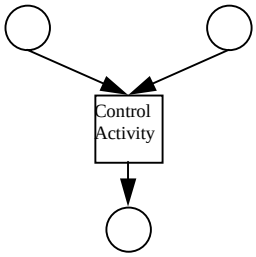
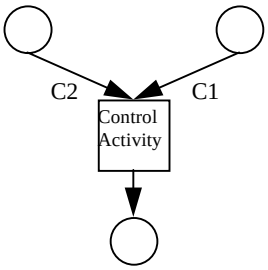
Building Petri-net processes in the BAAN IV Enterprise Modeler process editor is done using four construction elements.

Construction Elements	Description
	**State:** States contain job tokens, which are to be processed in the activity following the state. An example of a token in a state is a sales order to be accepted and confirmed. A state can hold a certain type of job token, described in the state definition.
	**Control activity:** Control activities are responsible for the navigation of a job token **through** a process. They do not process the job tokens like processing activities.
	**Processing activity:** Manual or automated activities which transform a job token from an input state into another job token in the output state.
	Subprocess: Subprocesses make it possible to break down complex processes into subprocesses. The shadow indicates that underneath the process step a subprocess has been defined.

3.1.3 Modeling principles

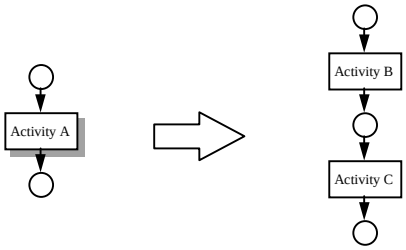
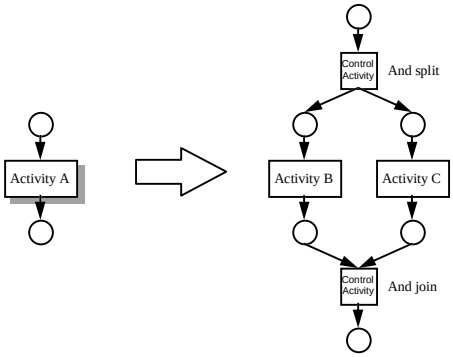
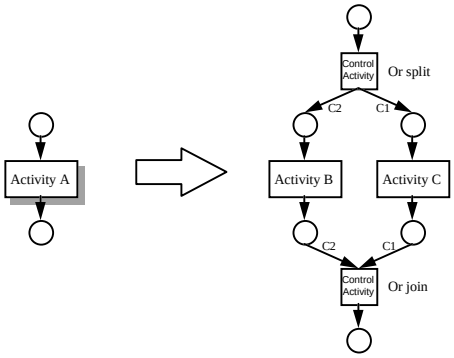
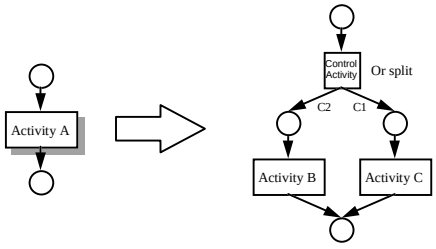
Process modeling with Petri-nets is based on a few principles, which will be explained in this section.

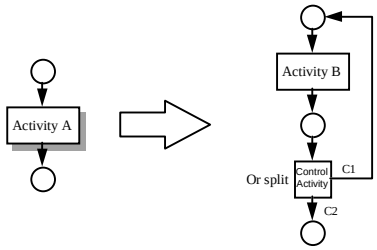
- An activity is enabled when there is at least one job token in all connected input states of the activity.
- An activity consumes one job token from every input state, and produces (fires) one job token to every connected output state.
- Control activities are dedicated for the routing of job tokens and have special capabilities:
  - In principle control activities behave like normal activities with respect to job token consumption and production.
  - The actual behavior of control activities is fully determined by the assignment of conditions to the input and output relations with states.
    - Conditions can either be static or dynamic or a combination of both.
    - Static conditions refer to an implementation decision**.**
    - Dynamic conditions refer to an operational decision of the end-users or a value in the database (for instance invoice value > $ 10,000).
    - Dynamic conditions will become relevant when executing processes in a workflow environment in a later release of the BAAN software.
    - The diagram on the next page clarifies a number of control activity structures.

Control activity structure	Explanation
	**AND-split construction:** The control activity will consume one job token and produce two job tokens (one per output state) unconditionally.
	**OR-split, XOR-split:** The control activity will consume one job token and produce one or two job tokens (one per output state at the most) depending on the actual condition values of C1 and C2. If C1 and C2 do exclude each other, the construction is an exclusive OR (C1 or C2, but not both). Otherwise the construction is an OR (C1 or C2, or both).
	**AND-join construction:** The control activity is enabled if all input states contains at least one job token. The control activity will consume the two job tokens and produce one job token unconditionally.
	**OR-join, XOR-join:** The control activity will consume one or two job tokens depending on the actual condition values of C1 and C2 and produce one. If C1 and C2 do exclude each other, the construction is an exclusive OR (C1 or C2, but not both). Otherwise the construction is an OR (C1 or C2, or both).

3.1.4 Petri-net building blocks

Applying these principles consequently gives the following basic building blocks. Every process can be modeled with these. Making use of these building blocks guaranties the correct syntax.

Petri-net building blocks	Explanation
	**Sequencing of activities:** Activity A is broken down into two subsequent activities B and C, which are executed in the indicated order.
	**AND: Activities executed in parallel (mandatory):** An activity A is broken down into two activities B and C which must both be executed in order to finish the process. The sequence in which B and C are executed is of no importance.
	**OR: Activities executed in parallel (optional):** An activity A is broken down into one or two activities B and C. The first control activity has a variable number of output states, determined by the conditions C1 and C2. The second control activity has a variable number of input states, determined by the same conditions C1 and C2. In a workflow environment these conditions can be set by: ▪ implementation decisions (static condition) ▪ appl. data (invoice value >$ 10,000) ▪ end user decision in previous activity
	**XOR: Specialized activities:** An activity A is broken down into two alternative activities B or C. Based on the conditions C1 and C2 activity B or C is selected (not both, hence an exclusive OR) An OR-join is represented by a single output state at the end of the process.

Petri-net building blocks	Explanation
	**Iteration of activities:** The execution of activity A implies the execution of activity B one or more times. The number of iterations is set by the conditions C1 and C2.

3.1.5 Petri-net modeling advises

Experiences with process modeling in Petri-net flows leads to the following recommendations:

- Every process starts and ends with only one state.
- Give a clear and unambiguous definition of the input and output state (such as sales order to be accepted, or FAS order scheduled).
- Only use the basic building blocks as indicated. This guarantees correct Petri-nets, which can be executed by a workflow management system.
- Limit the number of steps in a process to 5-10 steps. Build a subprocess if more steps are required.
- Do not make use of page connectors, but rather structure a process in a hierarchical manner.

3.2 Modeling conventions for the BAAN IV Enterprise Modeler

3.2.1 Introduction

Since in many cases several project teams will be adding components to the BAAN IV Enterprise Modeler repository simultaneously, some coding must be standardized. The same accounts for developing wizards. This section defines coding conventions for wizards and for all generic components stored in the BAAN IV Enterprise Modeler repository. For more detailed explanations of the conventions defined here, see other parts of this manual or the module descriptions for the Enterprise Modeler.

3.2.2 Generic business functions in the repository

Business function classification

A repository of generic business functions for all organization typologies needs a classification system to retrieve the required business function when building a reference model. In the BAAN IV repository, a hierarchical function tree has been defined for the classification of the business functions. Four hierarchical levels have been defined:

1 **Megafunctions**
Every company can be classified according to the six megafunctions mentioned in the table. These megafunctions are of a generic nature and therefore not specific for a certain organization typology. These functions cover both management and execution processes (strategic planning, development and execution).

2 **Major functions**
Each megafunction can comprise multiple major functions. This concerns clearly delimited subfunctions with a clear-cut contribution (product or service) to the megafunction (functional decomposition). A major function is more closely related to an organization typology than to a megaprocess. Consequently, the repository of major functions will grow as the number of organization typology models increases.

3 **Main functions**
Each main function represents a main process in the process model. Both are defined for one workflow case that needs to be handled.

4 **Business functions, options, and variants**
As a rule, a main function has a basic content in the form of a defined subfunction, which is linked to the main function by means of a consistency rule. Apart from that, options and variants can be defined which may serve as substitutes or additions to this basic content. The number of options and variants is also expected to grow along with the number of organization typology models.

The example below gives a possible classification for the business function repository.

Mega	Major	Main	Options & Variants
5. Operations	5a Sales	5a.1 Sales Order Mgt.	5a.1.01 Manage & Control Sales Orders
			5a.1.09 Sales Statistics
			5a.1.10 Sales Budgeting,
			etc.

Baan proposes to use hierarchical numbers in the external code for business functions, options, and variants, which seems appropriate in view of the generic nature of the proposed structure.

Example

- Megafunctions : 1, 2, 3, ...
- Major functions : 1.1, 1.2, 1.3,...
- Main functions : 1.1.1, 1.1.2, 1.1.3
- Processes and variants : 1.1.1.1, 1.1.2.1, 1.1.3.1,....

Business function description

Every business function, at any level, should have a description to provide information on its objective and scope.

We propose to describe the following items:
- <no header> : “This business function has the following objectives:”
- IT support : “This business function is supported by”
- Remarks : (Enter text if required)

Description of optimization relationships

For every optimization relationship indicated between options and variants the proposed objective, change, and consequences for the proposed growth path should be stated.

We propose to describe the following items:
- <no header> : “The objective of the proposed optimization is”
- Consequences : “The implementation of the optimization has consequences for”. Consequences can concern such areas as process organization/control, technology, staff (level, skills), and culture.
- Remarks : (Enter text if required)

3.2.3 Generic business processes in the repository

Business process classification

In the business process repository, a distinction is made between main processes and detail processes. The main processes, responsible for handling a case and derived from the goods flow control model, are considered to be specific for a certain organization typology.

Detail processes, however, have a generic nature and can be applied in multiple organization typologies. Therefore the coding conventions differs for main and detail processes.

Main processes
Although main processes are organization typology specific they are stored and maintained in the business process repository for technical reasons. We propose the following standards for codes and names:

M01001
- M : Signifies a main process.
- 01 : Number of the reference model (01 = engineer-to-order)
- 001 : Sequence number for the main process within the reference model

Currently, the following reference model numbers are assigned:
- 01 : Engineer-to-order
- 02 : Assembly-to-order
- 03 : Consumer Packaged Goods
- 04 : Project Services
- 05 : Project Industries
- 06 : Services
- 07 : Wholesale
- 08 : Finance
- 09 : ….
- 10 : System management

Detail processes
In principle, detail processes are generic. This means that the code cannot refer to a reference model. To be able to manage the large number of detail processes at least to some extent, we propose the following standards:

DMN001
- D : Signifies detail process
- MN : Process dominant in class manufacturing
- 001 : Sequence number within class DMN

The dominant characteristic determines under which class a process is classified in the repository. However, this does not imply that such a process may not contain any sessions from another class. The classes have been defined in such a way, that they can be identified within every company (not organization typology specific).

We propose the following codes for these classes:
- BA : Basic data process
- SL : Sales process
- MN : Manufacturing
- PU : Purchasing
- PL : Planning (all resources)
- FI : Finance
- SE : Service
- WH : Warehousing
- EN : Engineering
- FR : Formula Management
- IT : System Management

- PI : Project Industries
- PS : Project Services
- PM : Product Batch Management
- QI : Quality Inspection
- QM : Quality Management

Work instructions

In principle, every process and process step (main and detail) should contain a work instruction. The work instruction should provide added value for the end user. Keywords are: user-friendliness, concise and to the point, relevant and non-patronizing. Work instructions and associated items can be recorded at various levels:

Main and detailed process help

<no header> : "The objective of this process is to"
Start Event : "This process starts with"
Process : "This process describes the steps needed to"
End Event : "This process results in"
Remarks : (Enter text if required)

Activity help (documented in the flow)

<no header> : (Enter text)
Remarks : (Enter text if required)

It concerns information which must clearly have added value to the existing on-line help in the context of the process (this means do not copy on-line help).

Control activities

Condition : Full description of the input and output conditions, which influence the behavior of the control activity.

3.2.4 Business rules in the repository

Business rules are recorded in the repository as well. The rules are classified according to the classes as applied for the process classification.

TSL001

- T : Indicates the type of business rule
- SL : Dominant within class sales
- 001 : Sequence number within class SL

The first position of the rule code indicates the rule type. The following rule types are defined with the corresponding one-character abbreviation:

- C : Consistency
- P : Set parameter
- T : Transformation
- S : Set static condition

3.2.5 Static conditions in the repository

Static conditions are variables which are set by the static condition rules, based on business functions choices. They influence the flow in the business processes. They are recorded in the repository as well. The static conditions are classified according to the classes as applied for the process classification.

SSL001

- S : Static condition
- SL : Dominant within class sales
- 001 : Sequence number within class SL

3.2.6 Roles in the repository

Roles are used to group employees with the same responsibilities. Mainly roles are linked to components in the organization model and to processes and activities. Roles should be defined et key-user level. Linking roles to processes and activities is important for the generation of session authorizations and user dialogs. Roles are used in the reference models for the purpose of explaining the reference model. In actual implementations the roles and authorizations will always be redefined. The roles are recorded in the repository as well. The roles are classified as according to the classes as applied for the process classification.

SL001

- SL : Dominant within class sales
- 001 : Sequence number within class SL

Note: The maximum length of the role should be five positions. If the length is six positions, the generation of the user dialog will not work correctly.

3.2.7 Utilities in the repository

Utilities are divided into three groups: standard utilities delivered with BAAN IV, utilities which are part of a reference model, and utilities which are part of a project model.

Standard BAAN IV utilities

Standard utilities are generated from the business objects of the BAAN IV applications. All display and print sessions within a business object are collected and stored as a utility in the Enterprise Modeler with the code of the business object. Maintain sessions are not part of utilities.

TDSLS00050

- TD : Package distribution
- SLS : Module Sales
- 00050 : Business object identification

Reference model utilities

Besides the standard utilities, based on the business objects, reference model specific utilities are defined and delivered with the model.

R01SL001

- R : Reference model utility
- 01 : Reference model number (01 = Engineer-to-order)
- SL : Dominant within class sales
- 001 : Sequence number within class SL

Project model utilities

Project model utilities can be coded as:

P01SL001

- P : Project model utility
- 01 : Reference model number (01 = Engineer-to-order)
- SL : Dominant within class sales
- 001 : Sequence number within class SL

3.2.8 Wizards in the repository

General

- Wizards are connected to main business functions.
- The wizard code is the same as the external code of the business function or business function variant with the extension /xx.
  - xx = 00 for the main wizards
  - xx = 01, 02, 03, etc. for nested wizards
  - Example : 5c.3.02.01/00 = main wizard
    5c.3.02.01/01 = nested wizard
- Use the Import Parameter option as much as possible, to automatically create the “apply constraint”.
- Parameter value decisions that are directly connected to the presence or absence of a business function, must be defined as a parameter rule.
- For basic wizards the Mandatory field must be *Yes*.
- Only combine parameters into one wizard when there is no dependency with other parameters. If parameters for one business function have a dependency, nested wizards must be used.
- The question text (wizard step) must be used as much as possible. Do not use the start and end texts for wizards used for parameter settings.
- Use only hint text for wizard steps if it is possible to clearly identify common practice.

Guidelines for writing text for wizards

The following guidelines must be used to assist in writing the textual information.

Wizard name

- The name of the wizard must be self-evident and appealing
- Name of the main wizard must be equal to the name of the main business function.
- The name of a nested wizard related to a business function variant must be equal to the name of the business function variant.

Text standards

- Use words like “you” and “your”.
- Use instructions or questions to direct the user to perform certain tasks.
- Start most questions with phrases like “Which option do you want” or “Would you like”. Users respond better to questions that ask if they want to do a task, than being told what to do. For example, “Which layout do you want?” works better in wizards than “Choose a layout.”
- Use contractions and short, common words. In some cases, it may be acceptable to use slang, but you must consider localization when doing so.
- Avoid using technical terminology that may be confusing to a novice user.
- Try to use as few words as possible. For example, the question “Which style do you want for this newsletter?” could be written simply as “Which style do you want?”
- Keep the writing clear, concise, and simple, but remember not to be condescending**.**

Start text for the wizard

The start text for the wizard describes the purpose of the wizard.

Example

This wizard will select the reference enterprise model and copy this to your business project model. This project model must be used to customize your situation.

End text for the wizard

The end text for the wizard describes the result of the wizard.

Example

You now have your own customized business project model.

Help text for the wizard

There is no help text for wizards yet. When this is introduced, conventions will be developed.

Question text for the wizard steps

The information provided should not raise any questions. Keep in mind that the user must be guided through the software by means of brief and clear instructions.

Example

Would you like to use the integration with Baan Finance?

If necessary, the question text can be divided into two blocks

- First block : Write down a plain question in two lines at most.
- Second block : If necessary, write an explanatory text, preferably separated from the question by a blank line.

Answer text for the wizard steps

In case of an answer with the domain of the data type long (used to store whole numbers and fractions), and with an obvious best practice default, define this default value. However, to enhance flexibility, only use the defaults in combination with a customization option such as Browse or Other. Use nested wizards to set up the customization options.

Hint text for the wizard steps

The hint text suggests a common practice.

Example

If both sales and accounts receivable are implemented, usually there is an integration with Finance.

Help text for the wizard steps

Only use help text for the wizard steps if necessary. Use the question text as much as possible.

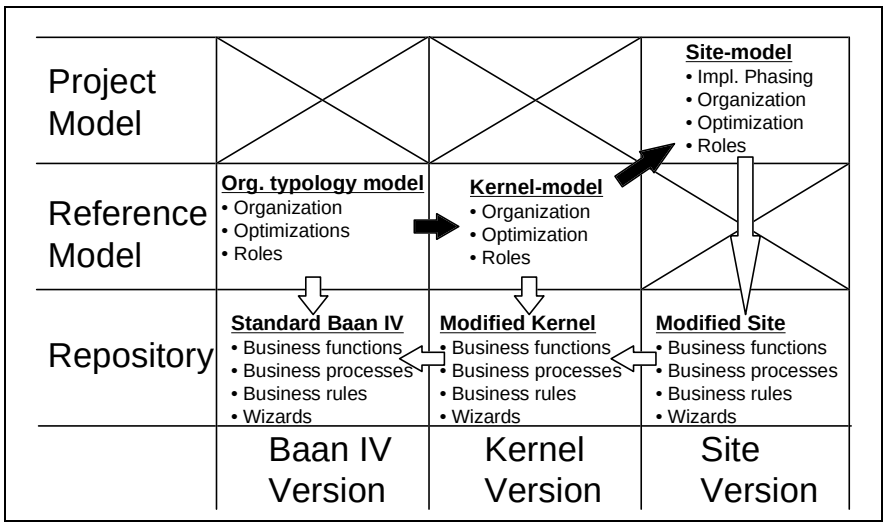
4 Version management

4.1 Introduction

The BAAN IV Enterprise Modeler provides the possibility to accommodate changes in business models by means of version management. The standard functionality of the Enterprise Modeler has four mechanisms to manage different versions:

1. a hierarchical version structure with a derived-from approach
2. version assignment to most of the business model components
3. version assignment to users with version authorization (BAAN IV b and up)
4. extensive analysis tools for analyzing differences between versions and/or models

The figure below shows an example of a hierarchical version structure:



Hierarchical version structure

On the horizontal axis, a version chain has been established:

- A site version derived from a kernel version
- A kernel version derived from the BAAN IV version
- The standard BAAN IV version

4.2 Working principle

4.2.1 Baan version

Baan will fill and maintain the repository in the BAAN IV version. Based on the elements defined in this repository, Baan will define reference models for selected organization typologies, like Make-to-Stock, Assemble-to-Order, and Project Industries. Dynamic Enterprise Modeling developers of Baan and partners will work in the BAAN IV version.

4.2.2 Client kernel team

Generally, a kernel development team of a customer will work in a dedicated version, called the kernel version. Because of the derived-from chain, all BAAN IV elements will be available but cannot be modified. A kernel team will build a kernel model, consisting of one or more kernel reference models in five steps:

1. initially by copying a reference model to a kernel model and evaluating it
2. adding missing elements in the repository in the kernel version
3. copying elements of the repository in the BAAN IV version to the repository in the kernel version
4. modifying the copied elements in the repository of the kernel version
5. importing the modified elements from the repository to the reference model in the kernel version

4.2.3 Client site team

The way of working in a client site team is the same as in a kernel team. The difference is the contents of the derived-from version chain. Site teams will always work in the site version. They make use of elements in the kernel repository and BAAN IV repository, and can add missing elements in a local repository in the site version.

The site version will be used for creating a project model for every site, based on the kernel reference model(s) and the repository.

Remark

In a single site situation, Baan strongly recommends to implement a site version, which is derived from the Baan version.

4.2.4 Version management policy

A company should develop a modification policy and setup a maintenance organization for business models. Usually this is delegated to the Customer Competence Center (CCC).

When defining this corporate policy statement about how a corporate kernel model is safeguarded from local modifications the following questions arise:

- Are local modifications allowed, if so to what extent?
- Who will decide upon this, is there a central review board?
- How will local modifications be incorporated in the kernel model?

4.2.5 Modification practices

If modifications are inevitable, in must be decided what the rules are that site teams must apply when modifying the kernel model. Usually the following two strategies can be adopted:

1. Strategy 1:
   - copy the element from the kernel repository to the site repository with the same identification (name and key)
   - modify the element in the site repository
   - note that a difference analysis remains possible between elements in both repositories
2. Strategy 2:
   - copy the element from the kernel repository to the site repository while changing the identification (other name and key)
   - modify the new element in the site repository
   - note that a difference analysis between element in both repositories is no longer possible

5 Project management

5.1 Introduction

The development of models for organization typologies asks for a standardized approach to guarantee quality, progress monitoring, and communication between development teams and the steering committee. This chapter provides a standard approach for project management based on GDPM (Goal Directed Project Management) geared for model developments.

5.2 Ultimate objective

The final result of a project must be:

- An adequate organization typology specific reference model providing sound solutions for supporting business processes, including a vision and best practices applicable in the organization typology. The model must contain at least the components of the Enterprise Modeler reference model:
  - Reference business function model
  - Reference business process model
  - Reference business organization model
  - Business rules
  - BAAN IV parameter settings
- The reference model must be tested, piloted during an actual implementation at a customer site, and accepted by a review board consisting of clients, business consultants, and implementation consultants from Baan and/or partners.
- The reference model must be documented, and training materials and demonstration data must be developed.

5.3 Project organization

5.3.1 Concurrent engineering

In principle the reference business model should be developed in cooperation with Baan, a management consulting firm and the client organization. This guarantees that the needed business know-how is present within the development team. The working groups will operate according to concurrent engineering principles, which means that both business consultants and application consultants and key users will work simultaneously in different teams responsible for the elaboration of all aspects of a process (business and application issues).

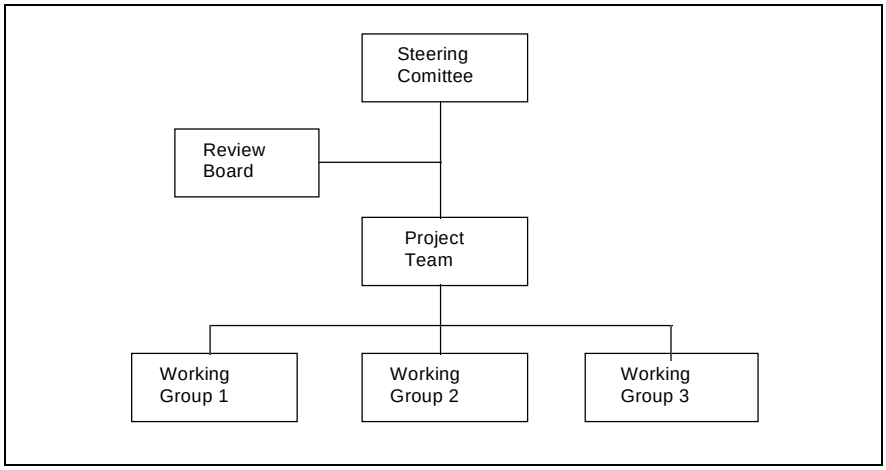
5.3.2 Resources

The following resources are needed:

- Project management
- Key users
- Business consultancy
- BAAN IV application consultancy
- Enterprise Modeler consultancy
- Technical support
- Review board

5.3.3 Structure of project organization

For the project organization the structure as shown in the figure below is proposed.



Proposal for project organization structure

5.4 Project management instruments

In line with good Baan tradition to apply GDPM, a standard milestone plan has been developed based on the Baan Development Method and based on experience from previous model development initiatives (Baan and partners).

5.4.1 Milestone plan

The standard structure of a reference model development project comprises six phases:

1 **Definition Study/Project Plan:**
During this phase a project is launched and a team will be trained. Important results of this phase are the definition of the project scope and system boundary, goods flow/financial control models, and main process flows with options and variants (see Deliverables).

2 **Functional Design/Prototype:**
During this phase the reference business model is defined and documented in the Enterprise Modeler.

3 **Technical Realization/System Test I:**
Each reference model should be tested. During System Test I the main functions/processes with all the details are tested one by one.

4 **System Test II/Acceptance Test I:**
The reference model is tested based on an integral case. All the relationships between the main functions/ processes including the details are tested, using the Baan application screens and data.

5 **Beta Stage/Acceptance Test II:**
The reference model should be piloted in a real-life environment. During this phase the reference business model is piloted at a customer site before final acceptance.

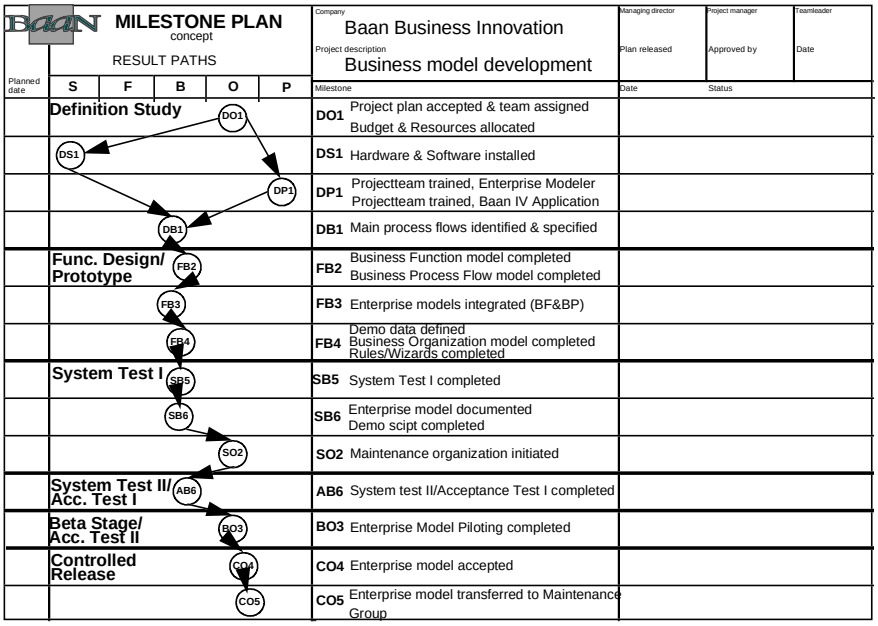
6 **Controlled Release:**
The final acceptance is done before releasing the model to the market.

According to GDPM, all milestones are allocated to the phases and the result paths. The following results paths are identified:

- S : System management aspects
- F : BAAN IV functionality
- B : Reference business model
- O : Organization
- P : Personnel

Each milestone is identified by a code with two characters and a sequence number. The first character relates to the phase (D, F, S, A, B or C). The second character relates to the results path (S, F, B, O or P).

The milestone plan has the structure as shown in the figure below.



Milestone plan for model development

5.4.2 Responsibility chart

In order to clearly identify responsibilities for achieving a milestone, a responsibility chart should be filled in, for example as shown in the figure below.

To specify the responsibilities, the following standard codes are used in GDPM:

- X : Executes the milestone
- D : Takes decision solely
- d : Takes decision jointly (group decision)
- P : Monitors progress
- I : Must be informed
- C : Must be consulted

Concept

Project responsibility chart

Project **Ent. Model Development**

Date issued: | Approved by:

Period length: | Target completion:

X - eXecutes the work
D - takes (final) decision
d - takes decision with consultation
P - is responsible for progress
E - gives explanation about the order
C - has to be consulted
I - has to be informed
A - available for advising

Companies / Departments / Functions / Group of employees

Arb.vol. M/D/W	Period 1 2 3 4 5 6 7 8 9 0 1 2 3 4	Milestone	Baan Business Innovation	Baan Consultancy	Business Model Proj. Mgt	Development partner	Development partner	Pilot Site	Baan Corp. Marketing	Review Board
		DO1 Proj plan acc. & team assigned	Id	d	PX	d	d	-	I	I
		DS1 Hardware & Software installed	C		P	X				
		DP1 Projectteam trained	X	X	P	X	X			
		DB1 Main process flows identified	XD	X	P	X	X		I	I
		FB2 Bus. Function & Proc. compl.	IC	X	P	X	X		I	I
		FB3 Enterprise Model integrated	IC	X	P	X	X		I	I
		FB4 Demo data, Organ., Rule/wiz.	IC	C	P	X	X			
		SB5 System test 1 completed	IX	X	P	X	X		I	
		SB6 Enterprise Model documented	IC	X	P	X	X			
		SO2 Maintenance org. initiated	X	X	P	C	C		X	
		AB6 System Test II completed	IX	X	P	X	X		I	
		BO3 Enterpr. Model Piloting compl.	I	X	P	X	I	X	I	
		CO4 Enterprise Model accepted	Xd	Xd	P	Xd	Xd	I	I	
		CO5 Enterprise Model transferred	Xd	Xd	P	Xd	Xd	I	I	

Responsibility chart for the milestones

5.4.3 Activity schedule

In order to achieve the milestones that are due in the short term, the milestone plan must be broken down in a more detailed activity plan. This activity plan does not specify what must be achieved, but more how it should be accomplished.

5.4.4 Deliverables

In order to avoid misunderstandings about what exactly constitutes a milestone, the most critical and tangible deliverables are identified and described following the DEM milestone structure.

The following deliverables should be developed as part of each reference business model:

1 Scope and system boundaries definition (Microsoft Word)
Before starting to develop business processes, the scope and the system boundaries of the reference model should be defined and a consensus should be reached. Answers should be given to questions such as:
- which subsystems are considered (for example business typologies, sales organizations, manufacturing typologies, distribution centers)
- which primary processes are conducted per subsystem
- which interfaces exist between subsystems

2 Business control model (Microsoft PowerPoint, Microsoft Word)
Per subsystem a business control model (high-level conceptual) should be defined. This model should present the order flow, goods flow and financial flow through operations and the way they are managed and controlled (like Customer Order Decoupling Point, Manufacturing Resource Planning [MRPII], Just-in-Time).

3 Identification of triggers and main processes per goods flow control model and financial control model (Enterprise Modeler)
The main processes must be identified in the Enterprise Modeler per goods flow control model and financial control model. Main processes are designed to execute one workflow case. Main processes have clear inputs and triggers, and clear results (such as sales order flow, engineering change, order change).

4 Identification of options and variants to be covered in a main process (Enterprise Modeler).
Because a business model is a generic model, options and variants of the flow must be defined for optimization purposes. When implementing the Baan software, a local project team can make decisions on which options and variants are actually implemented. This mechanism provides flexibility without abandoning the standard model.

5 Main and detailed process design (Enterprise Modeler)
Based upon the main process identifications and the options and variants to be covered in those processes, the main and detailed processes can be designed and developed.

6 Reference model development (Enterprise Modeler)
Besides extending the repository of the Enterprise Modeler, the reference model should be developed. This means that all entities of the reference model should be defined: business function model, business process model, organization model with roles, and the business rules.

7 Training materials and other documentation (Microsoft Word, Baan Documentation Tools)
For the total reference model, training material should be developed. The business function model is in fact a decision tree for implementing the Baan software from a process-oriented point of view. The consequences of decisions should be clear in advance.

8 Demonstration environment (Enterprise Modeler, BAAN IV software)
There are two parts:
- Project models should be developed as examples of certain optimization purposes.
- Data should be available in the application environment, in order to demonstrate the way the application acts by means of showing input screens.

6 Glossary

AO document
An administrative organization (AO) document is an administrative form that is linked to a process activity (ISO9000).

Business function variant or option
On the lowest level of the functional decomposition, variants or options can be defined, which serve as substitutes or additions to the basic content of the higher level business function.

Business function
A business function represents a business (sub)process as a black box. It describes *what* should be accomplished without going into detail as to *how* it should be accomplished. In the framework of Dynamic Enterprise Modeling it serves as a supporting concept to help the management of the client organization formulate the scope definition and make the right implementation decisions.

Business process
Whereas the business functions concentrates on *what* should be accomplished, the business process defines *how* this is accomplished, by defining the needed events and activities.

On the lowest decomposition level, the activities are projected on the BAAN IV application. In the diagram, the workflow in an organization is documented using an IT system.

Choices for implementation which have impact on the workflow, are visualized in a business process by validating and/or switching off certain process paths.

There are two kinds of business processes:

1 Main business process: high-level definition of workflow in a certain area of the business. A main business process calls various detailed business processes.

2 Detailed business process: detailed workflow of base activities.

Business rule
Rule for the purpose of

- documenting and controlling the consistency between business functions; (consistency rules)
- documenting and controlling the relations between main business functions and main business processes; (transformation rules)
- configuring (activating and de-activating) paths in processes, based on implementation choices; (set static condition rules)
- determining the parameter values of the BAAN IV software; (set parameter rules)

Control activity
Activity responsible for the navigation of a job token through a process.

Dynamic condition
Internal variable which is used for validating alternative paths in a business process based on *operational* choices. This is for future use in the BAAN IV software when workflow management is operational.

Employee
An employee in an organization who executes one or more roles, in that organization. Based on these roles business processes and activities are linked to an employee for authorization purposes.

Optimization phase
Phases in the business improvement cycle (of project models), in which the business function is being implemented or to which the business function applies within the organization. Optimization phases are valid for business functions, business processes, organization diagrams in project models.

Optimization relation
Business function optimization relationships indicate that a certain business function variant is an optimization of another business function variant.

Processing activity
Manual or automated activity which transforms a job token from an input state into another job token in the output state.

Project model
The total view of vision, functions, organization structures, and processes which are recorded as a representative way of doing business in the context of a company or part of a company.

Reference model
The total view of vision, functions, organization structures, and processes which are recorded as a representative way of doing business in the context of a certain organization typology.

Repository
Central file with model components (business functions, business processes, wizards, rules, static conditions, utilities) which are used in reference and project models.

Responsibility
Responsibilities which are linked to a role.

Role
General name for a function/task in a company which is executed by one or more employees. A role is used for authorizations of business processes and activities.

State
States contain job tokens, which are to be processed in the activity following the state.

Static condition
Internal variable which is used for validating alternative paths in a business process based on choices for implementation.

Utility
Collections of auxiliary sessions (like print and display sessions), which can be linked to a process or activity, but should not be incorporated in the process since they are not mandatory for the process execution.

Version
A set of model components, reference models, and project models. A version can be derived from another version, for which all components from the original version are taken that are not modified.

Wizard
Special form of user assistance that automates a task through a dialog with the user.

Wizard step
Part of the wizard, containing a question, possible answers and help- and hint text